**Pre-Calculus**

* 1. **Notes**

**Day 6**

1. **Linear and quadratic (squaring) functions**

* Facts about the linear function f(x) = ax + b

1. D: \_\_\_\_
2. R: \_\_\_\_
3. Graph has y-intercept at (\_\_, \_\_)
4. Graph increase if m \_\_ 0
5. Graph decreases if m \_\_ 0

**Ex. 1:** Write a linear function f given: f(1) = 3 & f(4) = 0.

* 2 special types of linear functions:

1. Constant function: f(x) = c

* D: \_\_\_\_\_\_\_\_\_\_\_
* R: \_\_\_\_\_\_\_\_\_\_\_

1. Identity function: f(x) = x

* D: \_\_\_\_\_\_\_\_\_\_\_
* R: \_\_\_\_\_\_\_\_\_\_\_
* Facts about the quadratic function: f(x) = x2

a) D:

b) R:

c) Even; Symmetric to \_\_\_\_\_\_\_\_\_.

d) Decreases on \_\_\_\_\_\_\_\_\_\_\_\_.

e) Increases on \_\_\_\_\_\_\_\_\_\_\_\_\_.

f) Relative Min at (\_\_, \_\_).

1. **Cubic, square root, and reciprocal functions**
2. Cubic

* D:\_\_\_\_\_\_\_\_
* R:\_\_\_\_\_\_\_\_\_
* Intercept at (\_\_, \_\_)
* Even/ Odd
* Sym. to \_\_\_\_\_\_\_\_\_\_
* Increasing (Monotonic function)

1. Square Root

* D:\_\_\_\_\_\_\_\_
* R:\_\_\_\_\_\_\_\_\_
* Intercept at (\_\_, \_\_)
* Increasing (Monotonic function)

1. Reciprocal

* D:\_\_\_\_\_\_\_\_
* R:\_\_\_\_\_\_\_\_\_
* No intercept
* Even/ Odd
* Sym. to \_\_\_\_\_\_\_\_\_\_
* Decreasing: (\_\_\_, \_\_) & (\_\_, \_\_\_)

1. **Step and Piecewise-Defined functions**

The Greatest Integer function: an example of a step function

**Definition: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

**Denoted: \_\_\_\_\_\_**

Ex.

Graph of Greatest Integer function: f(x) =

* D:\_\_\_\_\_\_\_\_
* R:\_\_\_\_\_\_\_\_\_
* Intercepts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Constant graph between any 2 integers
* Discontinuous at each integer

**Ex. 2:** Evaluate f(x) = ,when x = -1, 2, and

1. f(-1) =
2. f(2) =
3. f

**Ex. 3:** Graph f(x) = 2x + 3, x ≤ 1

-x + 4, x > 1